JUN 1 4 2001

TECH CENTER 1600/2900

### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No.:38005-0126

Applicant: LEBERER, Ekkehard Confirmation No.: 8288

Appl. No.: 09/758,036 Examiner: Not yet assigned

Filing Date: January 11, 2001 Art Unit: 1645

Title: Potassium Channel Mutants of the Yeast Saccharomyces Cerevisiae and

their use for Screening Eukaryotic Potassium Channels

# INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56 and 37 CFR §1.97

Director of Patents Washington, D.C. 20231

Sir:

Submitted herewith on Form PTO/SB/08A is a listing of documents known to applicants in order to comply with applicants' duty of disclosure pursuant to 37 C.F.R. §1.56 and §1.97. A copy of each of the listed documents are being submitted to comply with the provisions of 37 C.F.R. §1.97-1.99. A complete copy of references A28 and A42 were unavailable at the time of filing this Information Disclosure Statement. The applicant will submit a copy of these references in due course.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* prior art reference against the claims of the present application.

### TIMING/FEE

The instant Information Disclosure Statement is being filed in compliance with 37 CFR §1.97(b) prior to the mailing date of the first official action, therefore, no fee is required in connection with its filing.

Applicants respectfully request that the listed documents be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08A be returned in accordance with M.P.E.P. §609.

Respectfully submitted,

Date: June 11, 2001

HELLER EHRMAN WHITE & MCAULIFFE 1666 K Street, N.W., Suite 300

Washington, DC 20006 Telephone: (202) 912-2777 Facsimile: (202) 912-2020 (Caticio D. Stanadas

Patricia D. Granados Attorney for Applicant Registration No. 33,683 Customer No. 26633

26633
PATENT TRADEMARK OFFICE



Please type a plus sign (+) inside this box +

PTO/SB/08A (08-00) +

Approved for use through 10/31/2002. OMB 0681-0031
U.S. Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE
Under the Papework Reduction Act of 1995, no persons are required to respond to a collection of information unites to reclaims a valid OMB contribution.

_	Substitute for form 1449A/PTO				Complete if Known		
		344 A TION		01.001105	Application Number	09/758,036	
	INFORMATION DISCLOSURE				Filing Date	January 11, 2001	
	STATEMENT BY APPLICANT			PPLICANT	First Named Inventor	Ekkehard LEBERER	
			Group Art Unit	1645			
	(	use as many she	ets as	necessary)	Examiner Name	Unassigned	
_	Sheet	1	of	4	Attomey Docket Number	38005-0126	

Į	OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS		
	Examiner Initials *	Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the ttem (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
P	E very	A01 CURRAN, M.E., et al; "Molecular cloning, characterization, and genomic localization of a human potassium channel gene"; Genomics; 1992; pp. 729-737; Vol. 12; Academic Press, Inc.	
l	, 2000 E	DASCAL, N. et al, "Atrial G protein-activated K" channel: Expression cloning and molecular properties", Proc. Natl. Acad. Sci. USA; November 1993; pp. 10235-10239; Vol. 90;	
	1 2001 E	A03 FAIRMAN, C., et al; "Potassium uptake through the TOK1 K" channel in the budding yeast", J. Membr. Biol.; 1999; pp. 149-157; Vol. 168; Springer-Verlag New York Inc.; 1999	
1	ADE	A04 FEDIDA, D. et al; "The 1997 Stevenson Award Lecture. Cardiac K" channel gating: cloned delayed rectifier mechanisms and drug modulation" Can. J. Physiol. Pharmacol; 1998; pp 77-89; Vol. 76; NRC Canada; 1998	-
I		A05 JGABER, R.F. et al; *TRK1 encodes a plasma membrane protein required for high-affinity potassium transport in Saccharomyces cerevisiae** Mol. Cell Biol.; 1988; pp 2848-2859; Vol. 8; American Society for Microbiology; 1988	
I		A06 GOLDSTEIN, S.A. et al; "Three new dominant drug resistant cassettes for gene disruption in Saccharomyces cerevisiae"; Yeast; 1999; pp 1541-1553; Vol. 15; John Wiley & Sons, Ltd.	
I		GOLDSTEIN, S.A. et al; "ORK1, a potassium-selective leak channel with two pore domains cloned from Drosophila melanogaster by expression in Saccharomyces cerevisiae"; Proc. Natl. Acad. Sci. USA; November 1996, pp 13256-13261; Vol. 93	
		A08 GULDENER, U. et al; "A new efficient gene disruption cassette for repeated use in a budding yeast"; Nucleic, Acids. Res; 1996; pp 2519-2524; Vol. 24; Oxford University Press	
		A097 IKEDA, K. et al., "Functional coupling of the nociceptin/orphanin FQ receptor with the G-protein-activated K" (GIRK) channel", Brain Res. Mol. Brain Res; 1997; pp 117-126; Vol. 45; Elsevier Science B V.	
I		A10 /ITOH, T et al; "Genomic organization and mutational analysis of HERG, a gene responsible for familial long QT syndrome"; Hum. Genet.; 1998; pp 435-439; Vol. 102; Springer-Verlag 1998	
I		JAN, L.Y. et al; "Cloned potassium channels from eukaryotes and prokaryotes"; Annu. Rev. Neurosci ; 1997; pp 91-123; Vol. 20; Annual Reviews Inc.	
ı		A12 JELACIC, T.M. et al; "Functional expression and characterization of G-protein-gated inwardly rectifying K" channels containing GIRK3" J. Membr. Biol. 1999, pp 123-129; Vol. 169; Springer-Verlag New York Inc.; 1999	

Examiner	Date	1
Signature	 Considered	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Burdon Neur Statement. The form is entimated to take 2.0 hours to complete. Time will very depending upon the meets of this individual tasts. Any commenses to the amount of time by use measured to complete this form devold to save it to the offent formation officer. It is Palent and Trademark. Office. Weshington, DC 2023: 1.0 NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Varshington, DC 2023: 1.0

<sup>1</sup> Unique citation designation number, 2 Applicant is to place a check mark here if English language Translation is attached.





## RECEIVED

JUN 1 4 2001

**TECH CENTER 1600/2900** 

PTO/SB/08A (08-00)

#### Please type a plus sign (+) inside this box +

Approved for use through 10/31/2002. OMB 0851-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

U.S. Patent OFFICE: U.S. DEPARTMEN

Under the Paperwork Reduction Act of 1995, no persons Substitute for form 1449A/PTO	are required to respond to a collection of information unless it contains a valid CMB control number of the complete of Known		
	Application Number	09/758,036	
INFORMATION DISCLOSURE	Filing Date	January 11, 2001	
STATEMENT BY APPLICANT	First Named Inventor	Ekkehard LEBERER	
	Group Art Unit	1645	
(use as many sheets as necessary)	Examiner Name	Unassigned	
Sheet 2 of 4	Attorney Docket Number	38005-0126	

OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS				
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T 2	
	A13 、	KETCHUM, K.A. et al, "A new family of outwardly rectifying polassium channel proteins with two pore domains in tandem", Nature; August 24, 1995; pp 690-695; Vol. 376		
	A14_5	/KO, C.H. et al; "TRK2 is required for low affinity K" Trasport in Saccharomyces cerevisiae", Genetics; June 1990; pp 305-312; Vol. 125; The Genetics Society of America	(*)	
	A15 <sub>(</sub> <	KO, C'H et al; "TRK1 and TRK2 encode structurally related K" transporters in Saccharomyces cerevisiae" Mol Cell. Biol.; 1991; pp 4266-4273; Vol. 11; American Society for Microbiology		
	A16 _	KUBO, Y. et al; "Primary structure and functional expression of a rat G-protein-coupled muscarinic potassium channel"; Nature; August 26, 1993; pp 802-806; Vol. 364		
	A17	LUDWIG, A. et al; "Two pacemaker channels from human heart with profoundly different activation kinetics", EMBO Journal; 1999; pp 2323-2329; Vol. 18		
	A18 .	MADRID, R. et al; "Ectopic potassium uptake in trk1 trk2 mutants of Saccharomyces cerevisiae correlates with a highly hyperpotarized membrane potential", J. Bio. Chem; 1988; pp.14838-1484; Vol. 273; The American Society for Biochemistry and Molecular Biology, Inc., United States		
	A19 ~	MAIN, M J et al; "The CGRP receptor can couple via pertussis toxin sensitive and insensitive G proteins"; FEBS Lett.; 1998; pp 6-10; Vol. 441; Federation of European Biochemical Societies	45,	
	A20,∠	MUMBERG, D. et al; "Yeast vectors for the controlled expression of heterologus proteins in different genetic backgrounds"; Gene; 1995; pp 119-122; Vol 156		
	A21 <	MYERS, A.M. et al; "Mitochondrial protein synthesis is required for maintenance of intact mitochondrial genomes in Saccharomyces cerevisiae", EMBO Jour.; 1985; pp 2087-2092; Vol. 4; IRL Press Limited, Oxford England		
	A22	NAKAMURA, R.L. et al; "Determination of key structural requirements of a K" channel pore"; J. Biol. Chem. 1997; pp 1011-1018; Vol. 272; The American Society for Biochemistry and Molecular Biology, Inc.		
	A23 C	ROBERDS, S.L. et al, "Cloning and tissue-specific expression of five voltage-gated potassium channel cDNAs expressed in rat heart", Proc. Natl. Acad. Sci. U.S.A.; 1991, pp 1798-1802, Vol. 88		
	A24 ~	RONICKE, V. et al; "Use of conditional promoters for expression of heterologus proteins in Saccharomyces cerevisiae"; Methods Enzymol.; 1997; pp 313-322; Vol. 283		

Examiner Signature	Date Considered	
-----------------------	--------------------	--

EXAMINER: initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered, include copy of this form with next communication to applicant.

Burden Hour Statement This form is assimated to take 2.0 hours to complete Time will vary departing upon the needs of the interioristic case. Any comments on the amount of time you are required to complete this form model the ward to the Critical Formation of Discuss US absoluted on Totalmank Critica, Washington, DC 2023. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO. Assistant Commissioner for Patients, Washington, DC 2023.

<sup>1</sup> Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

TECH CENTER 1600/2900

JUN 1-4 2001

Please type a plus sign (+) inside this box +

PTO/SB/08A (08-00) Approved for use through 10/31/2002, OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a vaid CMB control number

Substitute for form 1449A/PTO Complete if Known Application Number 09/758,036 INFORMATION DISCLOSURE Filing Date January 11, 2001 STATEMENT BY APPLICANT First Named Inventor Ekkehard LEBERER 1645 Group Art Unit (use as many sheets as necessary) Examiner Name Unassigned Sheet of 4 Attorney Docket Number 38005-0126

		OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the Item (book, magazine, journal, senal, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T 2
	A25 ~	SANGUINETTI, M.C. et al; "Molecular pysiology of cardiac delayed rectifier K" channels" Heart Vessels; 1997; pp 170-172; Vol. 12; Springer-Verlag 1997	
	A26 (	SCHREIBMAYER, W. et al, "Inhibition of an inwardly rectifying K" channel by G-protein alpha-subunits", Nature, 1996; pp 624-627; Vol. 380	
	A27 、	SMITH, F.W. et al; 'Plant members of a family of sulfate transporters reveal functional subtypes"; Proc. Natl. Acad. Sci. U.S.A.; 1995; pp 9373-9377; Vol. 92	
	A28	SNYDERS, D.J. et at; "A rapidly activating and slowly inactivating potassium channel cloned from human heart. Functional analysis after stable mammalian cell culture expression"; J. Gen Physiol.; 1993; pp 513-543; Vol. 101	
	A29_	TAGLIALATELA, M. et al; 'Human ether-a-gogo related Gene (HERG) K' channels as pharmacological targets: present and future implications.; Biochem. Pharmacol.; 1998; pp 1741-1746; Vol. 55	
	A30	TANG, W. et al; "Functional expression of a vertebrate inwardly rectifying K' channel in yeast"; Mol. Biol. Cell; 1995; pp 1231-1240; Vol. 6; The American Society for Cell Biology	
	A31 ×	WACH, A. et al; "New heterologous modules for classical or PCR-based gene disruptions in Saccharomyces cerevisiae"; Yeast; 1994; pp 1793-1808; Vol. 10, John Wiley & Sons Ltd.	
	A32 ~	WANG, Q. et al, "Genetics, molecular mechanisms and management of long QT syndrome"; Ann. Med.; 1998; pp 58-65; Vol. 30; The Finnish Medical Society Duodecim	
	A33 V	WILDE, A.A. et al; "Ion channels, the QT interval, and arrhythmias"; Pacing. Clin. Electrophysiol.; 1997; pp 2048- 2051; Vol. 20	
	A34 •	WISCHMEYER, E. et al; "Subunit interactions in the assembly of neuronal Kir3.0 inwardly rectifying K" channels"; Mol. Cell. Neurosci.; 1997; pp 194-206; Vol 9; Academic Press	
	A35 \	YAMADA, M. et al, 'G Protein regulation of potassium ion channels'; Pharmacol. Rev.; 1998; pp 723-760; Vol. 50; The American Society for Pharmacology and Experimental Therapeutics, United States	
	A36 S	BOCK, J.H. et al; "Nucleotide sequence analysis of the human KCNJ1 potassium channel locus"; Gene; 1997; pp 9-16; Vol. 188; Elsevier Science B.V.	

Examiner Signature C	lered
----------------------	-------

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hisu Statement. This farm is estimated to take 2.0 hour to complete. Time will vary depending upon the needed of the individual uses. Any comments on the amount of time you are required to complete this form should be sent to the Civil refloration (Office, U.S. Patent and Trademark. Office, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents Washington, DC 20231: DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO THIS ADDRESS TO THIS ADDRESS



RECEIVED

JUN 1-4 2001

Please type a plus sign (+) inside this box -> +

Approved for use through 1031/2002 ONN 6051-0031
Approved for use through 1031/2002 ONN 6051-0031
Frademark Office: U.S. DEPARTMENT OF COMMISSION OF THROUGH U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO

Sheet

### INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

of 4

Complete if Known		
Application Number	09/758,036	
Filing Date	January 11, 2001	
First Named Inventor	Ekkehard LEBERER	
Group Art Unit	1645	
Examiner Name	Unassigned	
Attomey Docket Number	38005-0126	

		OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A37 ,	DELPON, E. et al; "Blockade of cardiac potassium and other channels by antihistamines"; Drug Safety; 1999; pp 11-18; Vol. 1; Adis International Limited.	
_	A38 ~	DRICI, M.D. et al, "Cardiac K" channels and drug-acquired long QT syndrome" Therapie; 2000; pp 185-193, Vol. 55	
	A39 ~	DuBUSKE, L.M. "Second-generation antihistamines: the risk of ventricular arrhythmias"; Clin, Ther.; 1999; pp 281-295; Vol. 21	
42	A40 <	ITOH, T. et al; "Genomic organization and mutational analysis of KVLQT1, a gene responsible for familial long QT syndrome"; Hum. Genet.; 1998; pp 290-294; Vol. 103; Springer-Verlag 1998	,
	A41-	KOBAYASHI, T. et al; "Inhibition by various antipsychotic drugs of the G-protein-activated inwardly rectifying K(+) (GIRK) channels expressed in xenopus oocytes; Br. J. Pharmacot, 2000; pp 1716-1722; Vol. 129; Macmillian Publishers Ltd.	
	A42	RICHELSON, E. "Preclinical pharmacology of neuroleptics. focus on new generation compounds", J. Clin. Psychiatry, 1996; pp 4-11, Vol. 57; Suppl. 11	
	A43 、	RICHELSON, E., "Receptor pharmacology of neuroleptics: relation to clinical effects"; J. Clin. Psychiatry, 1999; pp. 5-14; Vol. 60; Suppl. 10	
	A44 (	SHUCK, M.E. et al; "Cloning and characterization of multiple forms of the human kidney ROM-K potassium channel"; J. Blol. Chem.; 1994; pp 24261-24270; Vol. 269; "The American Society for Biochemistry and Molecular Biology. Inc.; United States	X .
	A45 👡	TAGLIALATELA, M. et al; "Cardiac ion channels and antihistamines: possible mechasisms of cardiotoxicity", Clin. Exp. Allergy; 1999; pp 182-188; Vol. 29; Suppl. 3; Blackwell Science Ltd.	
		L	

Examiner	Date
Signature	Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant,

1 Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Office, U.S. Patent and Trademark Office, Washington, D.C 2023.1 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS, SEND TO: Assistant commissioner to Patents, Washington, DC 20231.